

applies: *Critical Functions*: Functions whose failure would contribute to or cause a failure condition that would prevent the continued safe flight and landing of the airplane.

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Kevin Mullin,

Acting Manager, Transport Airplane Directorate, Aircraft Certification Service.

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DEPARTMENT OF TRANSPORTATION

Federal Aviation Administration

14 CFR Part 25

[Docket No. NM287; Special Conditions No. 25-281-SC]

Special Conditions: Airbus Model A330, A340-200 and A340-300 Series Airplanes; Lower Deck Mobile Crew Rest (LD-MCR) Compartment

AGENCY: Federal Aviation Administration (FAA), DOT.

ACTION: Final special conditions.

SUMMARY: These special conditions are issued for the Airbus Model A330, A340-200, and A340-300 series airplanes. These airplanes will have novel or unusual design features associated with a lower deck mobile crew rest (LD-MCR) compartment. The applicable airworthiness regulations do not contain adequate or appropriate safety standards for this design feature. These special conditions contain the additional safety standards that the Administrator considers necessary to establish a level of safety equivalent to that established by the existing airworthiness standards.

EFFECTIVE DATE: December 23, 2004.

FOR FURTHER INFORMATION CONTACT: Tim Backman, FAA, International Branch, ANM-116, Transport Airplane Directorate, Aircraft Certification Service, 1601 Lind Avenue SW., Renton, Washington, 98055-4056; telephone (425) 227-2797; facsimile (425) 227-1149.

SUPPLEMENTARY INFORMATION:

Background

On March 20, 2003, Airbus applied for a change to Type Certificate Numbers A46NM and A43NM to permit installation of an LD-MCR compartment in Airbus Model A330, A340-200, and A340-300 series airplanes.

The LD-MCR compartment will be located under the passenger cabin floor in the aft cargo compartment of Airbus

Model A330, A340-200, and A340-300 series airplanes. It will be the size of a standard airfreight container and will be removable from the cargo compartment. The LD-MCR compartment will be occupied in flight but not during taxi, takeoff, or landing. No more than seven crewmembers at a time will be permitted to occupy it. The LD-MCR compartment will have a smoke detection system, a fire suppression system, and an oxygen system.

The LD-MCR compartment will be accessed from the main deck via a "stairhouse." The floor within the stairhouse has a hatch that leads to stairs which occupants use to descend into the LD-MCR compartment. An interface will keep this hatch open when the stairhouse door is open. In addition, there will be an emergency hatch which opens directly into the main passenger cabin. The LD-MCR compartment has a maintenance door. This door is intended to be used to allow maintenance personnel and cargo handlers to enter the LD-MCR from the cargo compartment when the airplane is not in flight.

Type Certification Basis

Under the provisions of § 21.101, Airbus must show that Airbus Model A330, A340-200, and A340-300 series airplanes, as changed, continue to meet (1) the applicable provisions of the regulations incorporated by reference in A46NM (for Airbus Model A330) and in A43NM (for Airbus Model A340-200 and A340-300 series airplanes) or (2) the applicable regulations in effect on the date of application for the change. The regulations incorporated by reference in the type certificate are commonly referred to as the "original type certification basis." The regulations incorporated by reference in A46NM and A43NM are as follows:

The certification basis for Airbus Models A330-300, A340-200, and A340-300 series airplanes is 14 CFR part 25, as amended by Amendments 25-1 through 25-63; certain regulations at later Amendments 25-65, 25-66, and 25-77; and Amendment 25-64 with exceptions. Refer to Type Certificate Data Sheet (TCDS) A46NM or A43NM, as applicable, for a complete description of the certification basis for these models, including certain special conditions that are not relevant to these proposed special conditions.

The certification basis for Airbus Model A330-200 series airplanes is 14 CFR part 25, as amended by Amendments 25-1 through 25-63, 25-65, 25-66, 25-68, 25-69, 25-73, 25-75, 25-77, 25-78, 25-81, 25-82, 25-84 and 25-85; certain regulations at

Amendments 25-72 and 25-74; and Amendment 25-64 with exceptions. Refer to TCDS A46NM for a complete description of the certification basis for that model, including certain special conditions that are not relevant to these proposed special conditions.

If the Administrator finds that the applicable airworthiness regulations (*i.e.*, 14 CFR part 25) do not contain adequate or appropriate safety standards for Airbus Model A330, A340-200, and A340-300 series airplanes because of a novel or unusual design feature, special conditions are prescribed under the provisions of § 21.16.

In addition to the applicable airworthiness regulations and special conditions, Airbus Model A330, A340-200, and A340-300 series airplanes must comply with the fuel vent and exhaust emission requirements of 14 CFR part 34 and the noise certification requirements of 14 CFR part 36.

Special conditions, as defined in § 11.19, are issued in accordance with § 11.38 and become part of the type certification basis in accordance with § 21.101.

Special conditions are initially applicable to the model for which they are issued. Should the type certificate for that model be amended later to include any other model that incorporates the same or similar novel or unusual design feature, or should any other model already included on the same type certificate be modified to incorporate the same or similar novel or unusual design feature, the special conditions would also apply to the other model under the provisions of § 21.101.

Novel or Unusual Design Features

While the installation of a crew rest compartment is not a new concept for large transport category airplanes, each crew rest compartment has unique features based on design, location, and use on the airplane. The LD-MCR compartment is novel in terms of part 25 in that it will be located below the passenger cabin floor in the aft cargo compartment of Airbus Model A330, A340-200, and A340-300 series airplanes. Due to the novel or unusual features associated with the installation of a LD-MCR compartment, special conditions are considered necessary to provide a level of safety equal to that established by the airworthiness regulations incorporated by reference in the type certificates of these airplanes. These special conditions do not negate the need to address other applicable part 25 regulations.

Operational Evaluations and Approval

These special conditions specify requirements for design approvals (*i.e.*, type design changes and supplemental type certificates) of LD-MCR compartments administered by the FAA's Aircraft Certification Service. Prior to operational use of a LD-MCR compartment, the FAA's Flight Standards Service, Aircraft Evaluation Group (AEG), must evaluate and approve the "basic suitability" of the LD-MCR compartment for occupation by crewmembers. If an operator wishes to utilize a LD-MCR compartment as "sleeping quarters," the LD-MCR compartment must undergo an additional operational evaluation and approval. The LD-MCR compartments will be evaluated for compliance to §§ 121.485(a) and 121.523(b), with Advisory Circular 121-31 providing one method of compliance to these operating regulations.

To obtain an operational evaluation, the type design holder must contact the AEG within the Flight Standards Service which has operational approval authority for the project. In this instance, it is the Seattle AEG. The type design holder must request a "basic suitability" evaluation or a "sleeping quarters" evaluation of the crew rest. The type design holder may make these requests concurrently with the demonstration of compliance to these special conditions.

The results of these evaluations will be documented in the A330, A340-200 and A340-300 Flight Standardization Board (FSB) Report Appendix. In discussions with their FAA Principal Operating Inspector (POI), individual operators may reference these standardized evaluations as the basis for an operational approval, in lieu of an on-site operational evaluation.

An operational re-evaluation and approval will be required for any changes to the approved LD-MCR compartment configuration, if the changes affect procedures for emergency egress of crewmembers, other safety procedures for crewmembers occupying the LD-MCR compartment, or training related to these procedures. The applicant for any such change is responsible for notifying the Seattle AEG that a new crew rest evaluation is required.

All instructions for continued airworthiness (ICAW), including service bulletins, must be submitted to the Seattle AEG for approval acceptance before the FAA issues its approval of the modification.

Discussion of Special Conditions No. 9 and 12

The following clarifies how Special Condition No. 9 should be understood relative to the requirements of § 25.1439(a). Amendment 25-38 modified the requirements of § 25.1439(a) by adding the following language,

In addition, protective breathing equipment must be installed in each isolated separate compartment in the airplane, including upper and lower lobe galleys, in which crewmember occupancy is permitted during flight for the maximum number of crewmembers expected to be in the area during any operation.

Section 25.1439(a) requires protective breathing equipment (PBE) in isolated separate compartments in which crewmember occupancy is permitted. But the PBE requirements of § 25.1439(a) are not appropriate in this case, because the LD-MCR compartment is novel and unusual in terms of the number of occupants.

In 1976, when Amendment 25-38 was adopted, underfloor galleys were the only isolated compartments that had been certificated, with a maximum of two crewmembers expected to occupy those galleys. Special Condition No. 9 addresses PBE requirements for LD-MCR compartments, which can accommodate up to 7 crewmembers. This number of occupants in an isolated compartment was not envisioned at the time Amendment 25-38 was adopted.

In the event of a fire, an occupant's first action should be to leave the confined space, unless the occupant(s) is fighting the fire. It is not appropriate for all LD-MCR compartment occupants to don PBE. Taking the time to don the PBE would prolong the time for the occupant's emergency evacuation and possibly interfere with efforts to extinguish the fire.

In regard to Special Condition No. 12, the FAA considers that, during the one minute smoke detection time, penetration of a small quantity of smoke from the LD-MCR compartment into an occupied area on this airplane configuration would be acceptable based upon the limitations placed in these special conditions. The FAA determination considers that the special conditions place sufficient restrictions in the quantity and type of material allowed in crew carry-on bags that the threat from a fire in this remote area would be equivalent to that experienced in the main cabin.

Discussion of Comments

Notice of proposed special conditions No. 25-04-02-SC for the Airbus Model

A330, A340-200 and A340-300 series airplanes was published in the **Federal Register** on September 3, 2004 (69 FR 53841). Several commenters submitted comments on the proposed special conditions.

Proposed Special Condition 1(a) requires that there be appropriate placards displayed in a conspicuous place at each entrance to the LD-MCR compartment.

One commenter suggested that since cargo may be loaded through the maintenance door, the placard should be required to be outside the maintenance door.

The FAA considers that the special condition is sufficient as written, because the maintenance door is strictly for accessing and servicing the LD-MCR. No cargo or baggage will be loaded through the maintenance door, and, therefore, a placard is not needed on the outside of the door.

Proposed Special Condition 1(d) requires a means for any door installed between the LD-MCR and the passenger cabin to be quickly opened from "inside" the LD-MCR, even when crowding occurs at each side of the door.

One commenter indicates that the requirement for quick opening during crowding should also apply if there is an attempt to open the door from the passenger cabin.

This requirement addresses crew members who are exiting the mobile crew rest area and, therefore, do not have control of the area outside the door. When crew members are entering the LD-MCR, they would have sufficient control of the area outside the door to be able to enter the LD-MCR. Therefore, the FAA considers the special conditions sufficient to address this installation.

Proposed Special Condition 2 requires two emergency evacuation routes which could be used by each occupant of the LD-MCR compartment to rapidly evacuate to the main cabin.

One commenter states that the phrase "each occupant" in 14 CFR part 25 has been interpreted to mean a 5th percent female to a 95th percentile male. Yet the proposed Special Condition mentions only the 95th percentile male when addressing means to evacuate an incapacitated crewmember. The commenter suggests that the FAA define "each occupant" as used in this Special Condition.

In terms of evacuating an incapacitated crewmember, an incapacitated 95th percentile male is considered the "worst case" and is specifically addressed in the special conditions. The FAA concludes that

these special conditions are sufficient to address this installation.

Proposed Special Condition 12, in the third paragraph, addresses built-in fire extinguisher systems in the LD-MCR. It proposes that the system “must have adequate capacity to suppress any fire occurring in the LD-MCR compartment, considering the fire threat, the volume of the compartment, and the ventilation rate.”

One commenter suggests that the Special Condition be revised to include the maximum approved Extended-Range Twin-Engine operations (ETOPS) diversion time for the airplane in the list of things to be considered when determining adequate capacity of the fire extinguisher system.

The FAA does not concur. Since the certification regulations are design requirements and do not address the types of operation, the special conditions are intended to address only the design parameters of the LD-MCR. Therefore, these special conditions are considered sufficient to address this installation.

Proposed Special Condition 16 requires that materials and mattresses comply with the flammability standards of 14 CFR § 25.853 (Compartment Interiors) at Amendment 25-66.

One commenter states that—in Special Conditions No. 25-230-SC which were applied to Boeing’s overhead crew rests—the FAA required that the materials comply with § 25.853 at Amendment 25-83. The commenter asks for clarification of the reason that the lower lobe area allows for compliance with a lower amendment level of the design requirements.

In response, the FAA notes that, before initiating these special conditions, we determined the applicable airworthiness standards for this design change in accordance with 14 CFR 21.101 and Advisory Circular 21.101-1. Because the LD-MCR is not a “product level” change, we do not consider this change “significant” for purposes of that regulation. Therefore, the applicable regulations are those specified in the type certificate for the airplane, and it is not necessary for the applicant to show compliance with later amendments. For the A330 and A340, the certification amendment level is Amendment 25-66, whereas for the Boeing airplane, the certification amendment level is Amendment 25-83. In adopting special conditions in accordance with 14 CFR 21.16, we establish a level of safety equivalent to the applicable regulations. Therefore, the referenced amendment level is different for the two types of airplanes.

Proposed Special Condition 19 requires that “means must be provided to prevent access into the Class C cargo compartment during all airplane operations and to ensure that the maintenance door is closed during all airplane flight operations.

One commenter suggests that the proposed special condition is confusing, because the FAA uses two very different phrases: “airplane operations” and “airplane flight operations.” The commenter asks that the FAA define the terms, since “airplane operations” seems to be broader than “airplane flight operations.” In addition, the commenter asks that the wording be revised to require that the door be “secured” during flight operations, not just closed. The securing of this maintenance door during airplane operations is an important security measure to prevent passengers from accessing the cargo compartment or stowaways in the cargo compartment from accessing the airplane.

The FAA concurs and will revise the special condition as follows:

Means must be provided to prevent access into the Class C cargo compartment during all airplane *flight* operations and to ensure that the maintenance door is closed and secured during all airplane flight operations.

Proposed Additional Special Conditions:

One commenter suggests that there are some unique features of the LD-MCR that do not appear to be adequately covered by the proposed Special Condition.

1. One of these features is that two means of access from the LD-MCR to the main passenger compartment are required as part of the modification to the Airbus airplanes. Since the LD-MCR is removable, there must be provisions to secure the access means to eliminate any possibility of access between the cargo compartment and the passenger cabin when the LD-MCR is *not* installed.

The FAA concurs, and the FAA considers these special conditions, specifically No. 19, sufficient to address the certification requirements for this installation.

2. The commenter states that another unique feature of the LD-MCR is that it must connect to the airplane for electrical power and may have potable water and waste water attachments if it contains a lavatory. Since the LD-MCR is removable, those systems must be readily disconnected. As such, there should be requirements that ensure the integrity of those disconnects during a survivable crash landing, so that there are no sources of electrical arcing or the

waste water system is not breached, possibly contaminating evacuating passengers.

The FAA concurs, and the FAA considers the basic requirements of 14 CFR part 25 and these special conditions sufficient to address the certification requirements for this installation.

3. Finally, one commenter suggests that the facility should be physically isolated from the active areas and located close to the Flight Deck, so as to allow access to the flight deck without transiting public areas.

In response, the FAA indicates that there are no current regulations which require a crew rest to be located such that the flight deck personnel have private access to the crew rest or do not have to pass through public areas to get to it. These requirements are not necessary to establish a level of safety equivalent to the regulations. The FAA concludes that these special conditions are sufficient to address the certification requirements for this crew rest installation.

Applicability

As mentioned above, these special conditions are applicable to Airbus Model A330, A340-200 and A340-300 series airplanes. Should Airbus apply at a later date for a change to the type certificate to include another model incorporating the same or similar novel or unusual design feature, these special conditions would apply to that model as well.

Under standard practice, the effective date of final special conditions would be 30 days after the date of publication in the **Federal Register**; however, as the certification date for the Airbus Model A330, A340-200, and A340-300 is imminent, the FAA finds that good cause exists to make these special conditions effective upon issuance.

Conclusion

This action affects only certain novel or unusual design features on the A330, A340-200, and A340-300 series airplanes. It is not a rule of general applicability, and it affects only the applicant which applied to the FAA for approval of these features on the airplane.

List of Subjects in 14 CFR Part 25

Aircraft, Aviation safety, Reporting and recordkeeping requirements.

■ The authority citation for these special conditions is as follows:

Authority: 49 U.S.C. 106(g), 40113, 44701, 44702, 44704.

The Special Conditions

■ Accordingly, pursuant to the authority delegated to me by the Administrator, the following special conditions are issued as part of the type certification basis for certain Airbus Model A330, A340-200, and A340-300 series airplanes.

1. Occupancy of the LD-MCR compartment is limited to the total number of installed bunks and seats in each compartment. For each occupant permitted in the LD-MCR compartment, there must be an approved seat or berth able to withstand the maximum flight loads when occupied. The maximum occupancy in the LD-MCR compartment is seven.

(a) There must be appropriate placards displayed in a conspicuous place at each entrance to the LD-MCR compartment indicating the following information:

(1) The maximum number of occupants allowed;

(2) That occupancy is restricted to crewmembers trained in the evacuation procedures for the LD-MCR compartment;

(3) That occupancy is prohibited during taxi, take-off and landing;

(4) That smoking is prohibited in the LD-MCR compartment; and

(5) That the LD-MCR compartment is limited to the stowage of personal luggage of crewmembers and must not be used for the stowage of cargo or passenger baggage.

(b) There must be at least one ashtray located conspicuously on or near the entry side of any entrance to the LD-MCR compartment.

(c) There must be a means to prevent passengers from entering the LD-MCR compartment in an emergency or when no flight attendant is present.

(d) There must be a means for any door installed between the LD-MCR compartment and the passenger cabin to be capable of being quickly opened from inside the LD-MCR compartment, even when crowding occurs at each side of the door.

(e) For all doors installed in the evacuation routes, there must be a means to preclude anyone from being trapped inside a compartment. If a locking mechanism is installed, it must be capable of being unlocked from the outside without the aid of special tools. The lock must not prevent opening from the inside of a compartment at any time.

2. There must be at least two emergency evacuation routes, which could be used by each occupant of the LD-MCR compartment to rapidly evacuate to the main cabin and could be closed from the main passenger cabin after evacuation.

(a) The routes must be located with one at each end of the LD-MCR compartment or with two having sufficient separation within the LD-MCR compartment and between the routes to minimize the possibility of an event (either inside or outside of the LD-MCR compartment) rendering both routes inoperative.

(b) The routes must be designed to minimize the possibility of blockage, which might result from fire, mechanical or structural failure or from persons standing on top of or against the escape route. If an evacuation route utilizes an area where normal movement of passengers occurs, it must be demonstrated that passengers would not impede egress to the main deck. If a hatch is installed in an evacuation route, the point at which the evacuation route terminates in the passenger cabin should not be located where normal movement by passengers or crew occur, such as in a main aisle, cross aisle, passageway or galley complex.

If such a location cannot be avoided, special consideration must be taken to ensure that the hatch or door can be opened when a person who is the weight of a ninety-fifth percentile male is standing on the hatch or door.

The use of evacuation routes must not be dependent on any powered device. If there is low headroom at or near an evacuation route, provision must be made to prevent or to protect occupants of the LD-MCR compartment from head injury.

(c) Emergency evacuation procedures, including the emergency evacuation of an incapacitated crewmember from the LD-MCR compartment, must be established. All of these procedures must be transmitted to the operator for incorporation into its training programs and appropriate operational manuals.

(d) There must be a limitation in the Airplane Flight Manual or other suitable means requiring that crewmembers be trained in the use of evacuation routes.

3. There must be a means for the evacuation of an incapacitated crewmember who is representative of a 95th percentile male from the LD-MCR compartment to the passenger cabin floor. The evacuation must be demonstrated for all evacuation routes. A flight attendant or other crewmember (a total of one assistant within the LD-MCR compartment) may provide assistance in the evacuation. Additional assistance may be provided by up to three persons in the main passenger compartment. For evacuation routes having stairways, the additional assistants may descend down to one half the elevation change from the main

deck to the LD-MCR compartment or to the first landing, whichever is higher.

4. The following signs and placards must be provided in the LD-MCR compartment:

(a) At least one exit sign which meets the requirements of § 25.812(b)(1)(i) at Amendment 25-58 must be located near each exit. However, a sign with reduced background area of no less than 5.3 square inches (excluding the letters) may be utilized, provided that it is installed such that the material surrounding the exit sign is light in color (*e.g.*, white, cream, light beige). If the material surrounding the exit sign is not light in color, a sign with a minimum of a one-inch wide background border around the letters would also be acceptable;

(b) An appropriate placard which defines the location and the operating instructions for each evacuation route must be located near each exit;

(c) Placards must be readable from a distance of 30 inches under emergency lighting conditions; and

(d) The exit handles and the placards with the evacuation path operating instructions must be illuminated to at least 160 microlamberts under emergency lighting conditions.

5. There must be a means for emergency illumination to be automatically provided for the LD-MCR compartment in the event of failure of the main power system of the airplane or of the normal lighting system of the LD-MCR compartment.

(a) This emergency illumination must be independent of the main lighting system.

(b) The sources of general cabin illumination may be common to both the emergency and the main lighting systems, if the power supply to the emergency lighting system is independent of the power supply to the main lighting system.

(c) The illumination level must be sufficient for the occupants of the LD-MCR compartment to locate and transfer to the main passenger cabin floor by means of each evacuation route.

(d) The illumination level must be sufficient to locate a deployed oxygen mask with the privacy curtains in the closed position for each occupant of the LD-MCR compartment.

6. There must be means for two-way voice communications between crewmembers on the flight deck and crewmembers in the LD-MCR compartment. Section 25.785(h) at Amendment 25-51 requires flight attendant seats near required floor level emergency exits. Each such exit seat on the aircraft must have a public address system microphone that allows two-way

voice communications between flight attendants and crewmembers in the LD-MCR compartment. One microphone may serve more than one such exit seat, provided the proximity of the exits allows unassisted verbal communications between seated flight attendants.

7. There must be a means for manual activation of an aural emergency alarm system, audible during normal and emergency conditions, to enable crewmembers on the flight deck and at each pair of required floor-level emergency exits to alert crewmembers in the LD-MCR compartment of an emergency. Use of a public address or crew interphone system will be acceptable, provided an adequate means of differentiating between normal and emergency communications is incorporated. The system must be powered in flight for at least ten minutes after the shutdown or failure of all engines and auxiliary power units (APU) or the disconnection or failure of all power sources which are dependent on the continued operation of the engines and APUs.

8. There must be a means—readily detectable by seated or standing occupants of the LD-MCR compartment—which indicates when seat belts should be fastened. If there are no seats, at least one means, such as sufficient handholds, must be provided to cover anticipated turbulence. Seat belt-type restraints must be provided for berths and must be compatible with the sleeping attitude during cruise conditions. There must be a placard on each berth indicating that seat belts must be fastened when the berth is occupied. If compliance with any of the other requirements of these special conditions is predicated on specific head location, there must be a placard specifying the head position.

9. To provide a level of safety equivalent to that provided to occupants of a small isolated galley—in lieu of the requirements of § 25.1439(a) at Amendment 25-38 that pertain to isolated compartments—the following equipment must be provided in the LD-MCR compartment:

(a) At least one approved hand-held fire extinguisher appropriate for the kinds of fires likely to occur;

(b) Two Personal Breathing Equipment (PBE) units approved to Technical Standard Order (TSO)-C116 or equivalent, which are suitable for fire fighting, or one PBE for each hand-held fire extinguisher, whichever is greater; and

(c) One flashlight.

Note: Additional PBEs and fire extinguishers in specific locations, beyond the minimum numbers prescribed in Special Condition No. 9, may be required as a result of any egress analysis accomplished to satisfy Special Condition No. 2(a).

10. A smoke or fire detection system or systems must be provided to monitor each occupiable area within the LD-MCR compartment, including those areas partitioned by curtains. Flight tests must be conducted to show compliance with this requirement. Each smoke or fire detection system must provide the following:

(a) A visual indication to the flight deck within one minute after the start of a fire;

(b) An aural warning in the LD-MCR compartment; and

(c) A warning in the main passenger cabin. This warning must be readily detectable by a flight attendant, taking into consideration the positioning of flight attendants throughout the main passenger compartment during various phases of flight.

11. The LD-MCR compartment must be designed such that fires within it can be controlled without a crewmember having to enter the compartment or be designed such that crewmembers equipped for fire fighting have unrestricted access to the compartment. The time for a crewmember on the main deck to react to the fire alarm, don the fire fighting equipment, and gain access must not exceed the time for the compartment to become smoke-filled, making it difficult to locate the source of the fire.

12. There must be a means provided to exclude hazardous quantities of smoke or extinguishing agent originating in the LD-MCR compartment from entering any other compartment occupied by crewmembers or passengers. This means must include the time periods during the evacuation of the LD-MCR compartment and, if applicable, when accessing the LD-MCR compartment to manually fight a fire. Smoke entering any other compartment occupied by crewmembers or passengers when the LD-MCR compartment is opened during an emergency evacuation must dissipate within five minutes after the LD-MCR compartment is closed.

Hazardous quantities of smoke may not enter any other compartment occupied by crewmembers or passengers during subsequent access to manually fight a fire in the LD-MCR compartment. (The amount of smoke entrained by a firefighter exiting the LD-MCR compartment through the access is not considered hazardous.) During the one-minute smoke detection

time, penetration of a small quantity of smoke from the LD-MCR compartment into an occupied area is acceptable. Flight tests must be conducted to show compliance with this requirement.

If a built-in fire suppression system is used in lieu of manual fire fighting, the fire suppression system must be designed so that no hazardous quantities of extinguishing agent will enter other compartments occupied by passengers or crewmembers. The system must have adequate capacity to suppress any fire occurring in the LD-MCR compartment, considering the fire threat, the volume of the compartment and the ventilation rate.

13. For each seat and berth in the LD-MCR compartment, there must be a supplemental oxygen system equivalent to that provided for main deck passengers. The system must provide an aural and visual warning to alert the occupants of the LD-MCR compartment of the need to don oxygen masks in the event of decompression. The warning must activate before the cabin pressure altitude exceeds 15,000 feet. The aural warning must sound continuously for a minimum of five minutes or until a reset push button in the LD-MCR compartment is depressed. Procedures for crewmembers in the LD-MCR compartment to follow in the event of decompression must be established. These procedures must be transmitted to the operator for incorporation into their training programs and appropriate operational manuals.

14. The following requirements apply to LD-MCR compartments that are divided into several sections by the installation of curtains or doors:

(a) To warn crewmembers who may be sleeping, there must be an aural alert that accompanies automatic presentation of supplemental oxygen masks. The alert must be able to be heard in each section of the LD-MCR compartment. A visual indicator that occupants must don an oxygen mask is required in each section where seats or berths are not installed. A minimum of two supplemental oxygen masks is required for each seat or berth. There must also be a means to manually deploy the oxygen masks from the flight deck.

(b) A placard is required adjacent to each curtain that visually divides or separates the LD-MCR compartment into small sections for privacy purposes. The placard must indicate that the curtain is to remain open when the private section it creates is unoccupied.

(c) For each section created by the installation of a curtain, the following requirements of these special conditions

must be met both with the curtain open and with the curtain closed:

- (1) Emergency illumination (Special Condition No. 5);
- (2) Aural emergency alarm (Special Condition No. 7);
- (3) Fasten seat belt signal or return to seat signal as applicable (Special Condition No. 8); and
- (4) Smoke or fire detection (Special Condition No. 10).

(d) Crew rest compartments visually divided to the extent that evacuation could be affected must have exit signs that direct occupants to the primary stairway exit. The exit signs must be provided in each separate section of the LD-MCR compartment and must meet the requirements of § 25.812(b)(1)(i) at Amendment 25-58. An exit sign with reduced background area, as described in Special Condition No. 4. (a), may be used to meet this requirement.

(e) For sections within a LD-MCR compartment that are created by the installation of a partition with a door separating the sections, the following requirements of these special conditions must be met with the door open and with the door closed:

(1) There must be a secondary evacuation route from each section to the main deck, or it must be shown that any door between the sections has been designed to preclude anyone from being trapped inside the compartment. Removal of an incapacitated crewmember from this area must be considered. A secondary evacuation route from a small room designed for only one occupant for a short period of time, such as a changing area or lavatory, is not required. However, removal of an incapacitated occupant from this area must be considered.

(2) Any door between the sections must be shown to be openable when crowded against, even when crowding occurs at each side of the door.

(3) There may be no more than one door between any seat or berth and the primary stairway exit.

(4) There must be exit signs in each section which meet the requirements of § 25.812(b)(1)(i) at Amendment 25-58 that direct occupants to the primary stairway exit. An exit sign with reduced background area, as described in Special Condition No. 4.(a), may be used to meet this requirement.

(5) Special Conditions No. 5 (emergency illumination), No. 7 (aural emergency alarm), No. 8 (fasten seat belt signal or return to seat signal as applicable) and No. 10 (smoke and fire detection) must be met both with the door open and the door closed.

(6) Special Conditions No. 6 (two-way voice communication) and No. 9 (PBE and other equipment) must be met independently for each separate section, except in lavatories or other small areas that are not intended to be occupied for extended periods of time.

15. Where a waste disposal receptacle is fitted, it must be equipped with a built-in fire extinguisher designed to discharge automatically upon occurrence of a fire in the receptacle.

16. Materials, including finishes or decorative surfaces applied to the materials, must comply with the flammability standards of § 25.853 at Amendment 25-66. Mattresses must comply with the flammability standards of § 25.853(b) and (c) at Amendment 25-66.

17. A lavatory within the LD-MCR compartment must meet the same requirements as a lavatory installed on the main deck, except with regard to Special Condition No. 10 for smoke detection.

18. When a LD-MCR compartment is installed or enclosed as a removable module in part of a cargo compartment or is located directly adjacent to a cargo compartment without an intervening cargo compartment wall, the following conditions apply:

(a) Any wall of the LD-MCR compartment—which forms part of the boundary of the reduced cargo compartment and is subject to direct flame impingement from a fire in the

cargo compartment—and any interface item between the LD-MCR compartment and the airplane structure or systems must meet the applicable requirements of § 25.855 at Amendment 25-60.

(b) Means must be provided to ensure that the fire protection level of the cargo compartment meets the applicable requirements of §§ 25.855 at Amendment 25-60; 25.857 at Amendment 25-60; and 25.858 at Amendment 25-54 when the LD-MCR compartment is not installed.

(c) Use of each emergency evacuation route must not require occupants of the LD-MCR compartment to enter the cargo compartment in order to return to the passenger compartment.

(d) The aural emergency alarm specified in Special Condition No. 7 must sound in the LD-MCR compartment in the event of a fire in the cargo compartment.

19. Means must be provided to prevent access into the Class C cargo compartment—whether or not the LD-MCR is installed—during all airplane flight operations and to ensure that the maintenance door is closed and secured during all airplane flight operations.

20. All enclosed stowage compartments within the LD-MCR compartment—that are not limited to stowage of emergency equipment or airplane supplied equipment (*i.e.*, bedding)—must meet the design criteria given in the table below. As indicated in the table, enclosed stowage compartments larger than 200 ft³ in interior volume are not addressed by this Special Condition. The in-flight accessibility of very large enclosed stowage compartments and the subsequent impact on the crewmembers' ability to effectively reach any part of the compartment with the contents of a hand fire extinguisher will require additional fire protection considerations similar to those required for inaccessible compartments such as Class C cargo compartments.

Fire protection features	Interior volume of stowage compartment		
	Less than 25 ft ³	25 ft ³ to 57 ft ³	57 ft ³ to 200 ft ³
Materials of Construction ¹	Yes	Yes	Yes.
Smoke or Fire Detectors ²	No	Yes	Yes.
Liner ³	No	Conditional	Yes.
Location Detector ⁴	No	Yes	Yes.

¹ *Material*

The material used to construct each enclosed stowage compartment must at least be fire resistant and must meet the flammability standards for interior components specified in § 25.853. For compartments less than 25 ft³ in interior volume, the design must ensure the ability to contain a fire likely to occur within the compartment under normal use.

² *Detectors*

Enclosed stowage compartments with an interior volume which equals or exceeds 25 ft³ must be provided with a smoke or fire detection system to ensure that a fire can be detected within a one-minute detection time. Flight tests must be conducted to show compliance with this requirement. Each system (or systems) must provide:

- (a) A visual indication in the flight deck within one minute after the start of a fire;

- (b) An aural warning in the LD-MCR compartment; and
 (c) A warning in the main passenger cabin. This warning must be readily detectable by a flight attendant, taking into consideration the positioning of flight attendants throughout the main passenger compartment during various phases of flight.

³ *Liner*

If it can be shown that the material used to construct the stowage compartment meets the flammability requirements of a liner for a Class B cargo compartment, no liner would be required for enclosed stowage compartments equal to or greater than 25 ft³ but less than 57 ft³ in interior volume. For all enclosed stowage compartments equal to or greater than 57 ft³ but less than or equal to 200 ft³ in interior volume, a liner must be provided that meets the requirements of § 25.855 at Amendment 25-60 for a class B cargo compartment.

⁴ *Location Detector*

LD-MCR compartments which contain enclosed stowage compartments with an interior volume which exceeds 25 ft³ and which are located away from one central location, such as the entry to the LD-MCR compartment or a common area within the LD-MCR compartment, would require additional fire protection features or devices to assist the firefighter in determining the location of a fire.

Issued in Renton, Washington, on December 29, 2004.

Kevin Mullin,

Acting Manager, Transport Airplane Directorate, Aircraft Certification Service.

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DEPARTMENT OF TRANSPORTATION

Federal Aviation Administration

14 CFR Part 39

[Docket No. FAA-2004-19089; Directorate Identifier 2000-CE-38-AD; Amendment 39-13928; AD 2005-01-04]

RIN 2120-AA64

Airworthiness Directives; Raytheon Aircraft Company 90, 99, 100, 200, and 300 Series Airplanes

AGENCY: Federal Aviation Administration (FAA), DOT.

ACTION: Final rule.

SUMMARY: The FAA is adopting a new airworthiness directive (AD) to supersede (AD) 98-15-13, which applies to certain Raytheon Aircraft Company 90, 100, 200, and 300 series airplanes. This AD adds the Raytheon Beech 99 series to the applicability listed in AD 98-15-13. The compliance actions remain the same for those aircraft originally affected by AD 98-15-13. AD 98-15-13 currently requires you to check the airplane maintenance records from January 1, 1994, up to and including the effective date of that AD, for any MIL-H-6000B fuel hose replacements on the affected airplanes; inspecting any replaced rubber fuel hose for a spiral or diagonal external wrap with a red or orange-red stripe along the length of the hose with 94519 printed along the stripe; and replacing any MIL-H-6000B rubber fuel hose matching this description with an FAA-approved hose having a criss-cross or braided external wrap. We are issuing this AD to prevent fuel flow interruption, which could lead to uncommanded loss of engine power and loss of control of the airplane.

DATES: This AD becomes effective on February 22, 2005.

As of February 22, 2005, the Director of the Federal Register approved the incorporation by reference of certain publications listed in the regulation.

ADDRESSES: To get the service information identified in this AD, contact Raytheon Aircraft Company, P.O. Box 85, Wichita, Kansas 67201-0085; telephone: (800) 625-7043. To review this service information, go to the National Archives and Records Administration (NARA). For information on the availability of this material at NARA, go to: http://www.archives.gov/federal_register/code_of_federal_regulations/ibr_locations.html or call (202) 741-6030.

To view the AD docket, go to the Docket Management Facility; U.S. Department of Transportation, 400 Seventh Street, SW., Nassif Building, Room PL-401, Washington, DC 20590-0001 or on the Internet at <http://dms.dot.gov>. The docket number is FAA-2004-19089.

FOR FURTHER INFORMATION CONTACT:

Jeffrey A. Pretz, Aerospace Engineer, ACE-116W, 1801 Airport Road, Room 100, Wichita, Kansas 67209; telephone: (316) 946-4153; facsimile: (316) 946-4407.

SUPPLEMENTARY INFORMATION:

Discussion

What events have caused this AD? Blockage of fuel hoses due to hose delamination on certain Raytheon Aircraft Company 90, 100, 200, and 300 series airplanes caused us to issue AD 98-15-13, Amendment 39-10664 (63 FR 38295-98, July 16, 1998). AD 98-15-13 currently requires the following on the affected airplanes:

- Checking the airplane maintenance records from January 1, 1994, up to and including the effective date of the AD, for any MIL-H-6000B fuel hose replacements on the affected airplanes;
- Inspecting any replaced rubber fuel hose for a spiral or diagonal external wrap with a red or orange-red stripe along the length of the hose with 94519 printed along the stripe; and
- Replacing any MIL-H-6000B rubber fuel hose matching this description

with an FAA-approved hose having a criss-cross or braided external wrap.

What has happened since AD 98-15-13 to initiate this action? The FAA has evaluated the design of the Raytheon Beech 99 series airplanes and determined that they could incorporate the same fuel hoses. Therefore, we have determined that the 99 series airplanes should be added to the applicability of these actions.

What is the potential impact if FAA took no action? Fuel flow interruption could lead to uncommanded loss of engine power and loss of control of the airplane.

Has FAA taken any action to this point? We issued a proposal to amend part 39 of the Federal Aviation Regulations (14 CFR part 39) to include an AD that would apply to certain Raytheon Aircraft Company 90, 99, 100, 200, and 300 series airplanes. This proposal was published in the **Federal Register** as a notice of proposed rulemaking (NPRM) on October 14, 2004 (69 FR 60971).

The NPRM proposed to supersede AD 98-15-13, which applies to certain Raytheon Aircraft Company 90, 100, 200, and 300 series airplanes. AD 98-15-13 currently requires you to check the airplane maintenance records from January 1, 1994, up to and including the effective date of that AD, for any MIL-H-6000B fuel hose replacements on the affected airplanes; inspecting any replaced rubber fuel hose for a spiral or diagonal external wrap with a red or orange-red stripe along the length of the hose with 94519 printed along the stripe; and replacing any MIL-H-6000B rubber fuel hose matching this description with an FAA-approved hose having a criss-cross or braided external wrap; and the NPRM proposed to add the Raytheon Beech 99 series to the applicability listed in AD 98-15-13.

Comments

Was the public invited to comment? We provided the public the opportunity to participate in developing this AD. We received no comments on the proposal or on the determination of the cost to the public.